

As the shift to NEV intensifies, there are many areas of uncertainty for both OEMs and Component Suppliers.

Executive Summary 1/2

The automotive supply chain is changing with the rise of electrified vehicles. This study, commissioned on behalf of the Automotive Supply Chain Competitiveness Initiative (ASCCI) and its stakeholders, namely NAAMSA, NUMSA and the DTIC, seeks to answer two questions: What is the impact of the NEV transition on the South African automotive supply chain? What are the associated opportunities for the automotive manufacturing sector?

The scope of the study is limited to powertrain technologies in passenger and light-duty vehicles. The impact of other automotive trends, such as autonomy, connectivity and shared services, were excluded from the scope of the study.

The following sources were utilised for the compilation of this study:

- Detailed desktop research on automotive technology development and trends,
- Interviews with stakeholders, local OEMs, Tier-n suppliers, and subject matter experts.

The core findings of the study are as follows:

Technical NEV Powertrain Characteristic

The key differences between a legacy internal combustion engine vehicle and a vehicle with an electrified powertrain can be summarised as follows:

1. Depending on the level of electrification, the engine capacity is smaller, or is eliminated entirely. Electric traction motors provide propulsion.
2. Battery electric vehicles predominantly consist of a transmission with a single drive gear.
3. The fuel tank size decreases as the capacity of the traction battery increases. In Fuel Cell Electric Vehicles, hydrogen storage tanks provide the fuel source, with a much smaller capacity battery pack.
4. An electric vehicle has a more complex thermal management system.
5. The fuel distribution system is replaced by high voltage wiring harnesses.

Key NEV Powertrain Technologies for Localisation

By studying the supply chain of the various technologies, and considering the manufacturing capabilities required for local manufacturing, the following three components have a high potential for successful localisation:

1. Electric Motors and Transmission (e-Axle)
2. Power Electronic Devices
3. High Voltage Wiring Harness.

Although the scope of the study was limited to three technologies, localisation opportunities in the battery supply chain will be present in the mid to long term. Further investigation is warranted.

Manufacturing Technologies

Local manufacturers have existing manufacturing capabilities to transition to NEV component manufacturing: Aluminium High Pressure Die-casting, Laser Welding, Aluminium Welding, Aluminium Stamping, Forging, Sintering, Crimping, Copper Extrusion and PCB production.

—To increase the attractiveness of South Africa as an automotive manufacturing hub for the future, an understanding of its peers are necessary.

Executive Summary 2/2

Peer Country Benchmark Study

South Africa's peers are determined to transition their ICE-focused manufacturing to capitalise on the electrification trend. Both Thailand and Morocco offer support in the form of manufacturing incentives for NEVs and associated components. Local market EV adoption is also encouraged by consumer incentives to purchase an EV.

Recommendations

The study concludes with seven recommendations to reduce the impact of the NEV transition:

1. Establish South Africa as a legacy ICE manufacturing hub by offering investment and operating support to legacy component manufacturers at risk.
2. Increase local EV adoption with a purchase subsidy based on the capacity of the traction battery.
3. Develop localisation of NEV component manufacturing by providing import tax rebate on selected raw material/sub-components which are not available in the local value-chain.
4. A supply-side incentive for EV raw material suppliers to attract investment and to create an end-to-end supply-chain.
5. Create a favourable African trading environment by lobbying for zero trade tariffs on selected raw minerals and automotive components.
6. A corporate tax rebate on the purchase and installation of an EV Charger, which is accessible to the public.
7. Create mining policy certainty to ensure the exploration of minerals required by the EV supply chain.